AVMAP
SATELLITE NAVIGATION

geosat5 APRS©

Set up instructions for:
Kenwood TM-D710 A/E
Kenwood TM-D700 A/E
Kenwood TH-D7 A/E

geosat5 APRS©

Set up instructions for:
Geosat 5 APRS
Geosat 5 blu APRS

with the following devices:
Kenwood TM-D710 A/E
Kenwood TM-D700 A/E
Kenwood TH-D7 A/E

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1. Introduction

APRS is a method for sending and receiving position and other information over a radio transceiver. The Geosat 5 is ready to accept APRS inputs from a radio transceiver, and to provide fix position output data to the transceiver in order to transmit your current position.
The Geosat 5 comes with a cable that is pre-wired for use with designated Kenwood radios. The input/output port used for APRS is the same port that is used for TMC, and is labeled TMC on the back of the Geosat 5. Due to the multi-use of the TMC port, it is not possible to operate APRS and TMC simultaneously.

Set-up for Kenwood TM-D710 A/E with the AvMap Geosat 5

1. Kenwood TM-D710 A/E Radio set-up

NOTE: These instructions assume you have basic familiarity with operation of both the TM-D710 A/E and the AvMap Geosat 5.

a. Turn the radio ON.
b. Press the "F" key to access the Setup Menu.
c. Press the MHZ knob.
d. Turn knob to select APRS.
e. Press the MHZ knob again enter the menu selection mode

Basic Setting Menu #600
a. Enter your call sign.
b. Set Beacon Type to APRS.
c. Turn the MHZ knob to scroll through menus.

Internal TNC Menu # 601
a. Do not make any changes. Leave all settings at "Default." Be sure that 1200 Bps is selected

GPS Port Menu #602
a. Change the Baud Rate to "9600"
b. Set the Input to "GPS"
c. Set the Output to "Waypoint"

Waypoint Format Menu # 603
a. Set Format to "Kenwood"
b. Change NAME to "9-CHAR"
c. The Output setting should be set to "ALL"

Beacon Information Menu # 606
a. Speed setting should be turned ON
b. Altitude setting should be turned ON
c. Position Ambiguity should be turned OFF

Beacon TX Algorithm Menu # 611
a. Set the Method to "Auto"

b. Press ESC to return to the main page
c. Change the APRS Frequency to: 144.390
d. Select TNC and press to turn on APRS 12
e. Press "BCON" to turn on -- BCON will appear in the upper right corner The Kenwood Radio is now ready to interface with the Geosat 5.

2. Geosat 5 Setup

a. Turn your Geosat 5 ON and press the MENU key
b. Select "Settings" at the bottom of the menu
c. Select "User Preferences"
d. Touch the blue NEXT arrow to proceed to USER PREFERENCES 2/2
e. Touch the INTERFACE button to go to the INTERFACE page
f. On the INTERFACE page Select APRS 9600. It is highly recommended that you CYCLE the APRS 9600 to APRS 4800 then back to APRS 9600 to insure that the Interface is locked to APRS 9600. This is highly recommended after any software updates.
g. Select "OK" at the bottom right of the page The Geosat 5 is now setup and ready to interface with the Kenwood.

3. Making it all work!

a. Make sure both the Kenwood TM-D710 and AvMap Geosat 5 are turned OFF!
b. Connect the four pole 2.5mm communication cable end to the Geosat 5's TMC receptacle and the three pole 2.5 mm end to the D710's GPS receptacle. IMPORTANT! These are easily reversed and hooked up backwards…also…when connecting to the Geosat 5 make sure you plug into the TMC receptacle…not the ANT receptacle which is right next to it and the same size! Check for a good click into the unit.
c. NOW POWER UP BOTH UNITS!

CAUTION! If you interface the units and do not see a flashing "GPS" signal on the upper right hand corner of the Kenwood, then the APRS cable may not be plugged-in all the way or correctly. Please check that the cord is plugged into the proper ports and plugged-in all the way. To ensure the APRS is plugged-in to the Geosat 5 all the way, press the cord again (may make a clicking noise 2 times). Also verify that the Geosat 5 is receiving a GPS fix.

Once your Geosat 5 and radio are working properly together, you will see an indication on the radio (if it provides such) that it is receiving GPS position data. In addition, as the radio provides position information to the Geosat 5, stations will be plotted on the screen. Depending upon the location of plotted stations, you may need to expand the scale of the map, or translate the map to a different location in order to see them. You can also verify this in the CONTACTS folder, subfolder APRS. The Geosat 5 will detect whether a station is moving based on the data received from that station.

If the Geosat 5 computes that a station is moving, it will be plotted as a red triangle with a call sign label. Stationary stations are plotted as a blue circle with a call sign label. To remove all APRS marks, enter the APRS folder you will have the option then to delete the folder. Once the folder is deleted, all APRS marks will be removed and the folder will be gone. When the first APRS mark is created, the Geosat 5 will create a new APRS labeled folder. To navigate to an APRS mark, select the desired APRS mark from the list and then press GO. You will get new routing instructions from the selected APRS mark when a new reposition packet is received.

Set-up for Kenwood TM-D700 A/E with the AvMap Geosat 5

1. Kenwood TM-D700 A/E set-up

NOTE: These instructions assume you have basic familiarity with operation of both the TH-D700 A/E and the AvMap Geosat 5.

a. While programming the Kenwood TM-D700 and/or the AvMap Geosat 5, the communication cable should be disconnected. Strange and/or bad things can occur if you fail to head this warning!
b. Starting with the Kenwood TM-D700. Note: Items in [ ] are buttons and { } are items you enter and/or 'see' on the radio screen.
c. Turn on the radio.
d. Make sure that {T}, {CT} and {DCS} do not appear at the top of your Kenwood TM-D700 screen,

Table 1. Kenwood TM-D700 A/E Settings

Screen #	Item	Select/Enter
3-1	CALL SIGN	{your call sign}
3-2	GPS UNIT- NEMA FORMAT	{NEMA96}
3-3	WAYPOINT	{9 DIGITS NEMA}
3-5	POS AMBIGUITY	{OFF}
3-7	POS LIMIT	{OFF}
3-B	PACKET PATH	{WIDE1-1,WIDE2-2}
3-C	PACKET TRANSMIT METHOD	{AUTO}
3-D	PACKET TRANSMIT INTERVAL	{3 MIN.} NOTE: Smaller times (<5min) are for mobile units while stationary stations will use longer times (~10 min. and up)
3-J	PACKET TRANSFER RATE	{1200 bps}

if they do press the [TONE] button until none of these appear.

e. Press the menu button [MNU] and use the control knob to get to the APRS setup menu {APRS 3-X} (the X here can be any letter or number) and press the [OK] button to select/enter.
f. Use the [é] and [ê] buttons to go to different screens in the APRS menu and the [OK] button to select/enter that particular screen.
g. Once you make your selection and/or entry push the [OK] button again to save the selection/ entry. Then go back to 'f.' above to get to the next APRS screen and enter all the Table 1 settings below.
h. Press the [ESC] button to leave the APRS setup screen and return the D700 user screen.
i. You can now power down the radio and it will keep your settings.

2. AvMap Geosat 5 set-up

a. While programming the AvMap Geosat 5 and/or the Kenwood TM-D700, the communication cable should be disconnected. Strange and/or bad things can occur if you fail to head this warning!
b. Items in [ ] are buttons and/or knobs and { } are items you enter/see on the Geosat 5 screen.
c. Begin by pressing the [Page] button to turn the Geosat 5 on.
d. After the "Welcome on board" On the {WARNING} page press [Accept] auto selects accept after 5 seconds
e. On the {MAIN MENU} page press [SETTINGS]
f. On the {SETTNGS} page press [User Preferences]
g. On the {USER PREFERENCES} page press [Interface]
h. Press [=>] to go to 2/2 page.
i. On the {INTERFACE} page press [APRS 9600] radial button 9600 seems to work best for the Kenwood APRS radios
j. On the {INTERFACE} page press [OK]
k. On the {USERPREFERENCES} page press [OK]
l. On the {SETTINGS} page press [MAP]

3. Making it all work!

a. Make sure both the Kenwood TM-D700 and AvMap Geosat 5 are turned OFF!
b. Connect the four pole 2.5mm communication cable end to the Geosat 5's TMC receptacle and the three pole 2.5 mm end to the D700's GPS receptacle. IMPORTANT! These are easily reversed and hooked up backwards; also when connecting to the Geosat 5 make sure you plug into the TMC receptacle, not the ANT receptacle which is right next to it and the same size! Check for a good click into the unit.
c. NOW POWER UP BOTH UNITS!
d. If your Kenwood D700 powers up in VFO mode (voice communications) push and hold the [F] button for 1 second and then push the [TNC] button. This will place your D700 in {TNC APRS} mode.
e. GEOSAT 5. After the "Welcome on board" greeting use the [cursor knob] to select {YES} when asked about the {Would you like to drive in Passenger Mode?}.
f. DOES IT WORK?? You will know you have done it right when you see {GPS} blinking at the top of your D700 screen and {1200} just to the right of that constantly on. The blinking GPS means that your GEOSAT 5 is 'TALKING' to your D700!
g. To begin transmitting your position push and hold the [F] button for 1 second and then push the [Beacon] button.

Set-up for Kenwood TH-D7 A/E with the AvMap Geosat 5

1. Kenwood TH-D7 A/E set-up

NOTE: These instructions assume you have basic familiarity with operation of both the TH-D7 A/E and the AvMap Geosat 5.

a. While programming the Kenwood TH-D7 and/or the AvMap Geosat 5, the communication cable should be disconnected. Strange and/or bad things can occur if you fail to heed this warning!
b. Starting with the Kenwood TH-D7. Note: Items in [ ] are buttons and { } are items you enter and/or 'see' on the radio screen.
c. Push the [Power] button to turn the radio on.

Table 1. Kenwood TH-D7 A/E Settings

The following APRS menu selections must be selected and/ or filled in for proper TH-D7A/E - Geosat 5 operations. Screen #	Item	Select/Enter
2-1	CALL SIGN	{your call sign}
2-2	GPS UNIT	{NEMA96}
2-3	WAYPOINT	{9digits NEMA}
2-5	POS AMBIGUITY	{OFF}
2-7	POS LIMIT	{OFF}
2-B	PACKET PATH	{WIDE1-1,WIDE2-2}
2-C	DATA TX	{AUTO}
2-D	PACKET TRANSMIT INTERVAL	{3 MIN.} NOTE: Smaller times (<5min) are for mobile units while stationary stations will use longer times (~10 min. and up)
2-N	PACKET SPEED	{1200 bps}

d. Make sure that {T} and {CT} do not appear at the top of your D7A screen, if they do press the [F] button then [BAL] button to turn [T] off or the [F] button then [POS] button to turn off [CT].
e. Press the [MENU] button and use the [Control Pad] (the top or bottom of the large round key pad on the left middle side of the D7A) to get to the APRS setup menu {APRS 2-X} (the X here can be any letter or number) and press the [OK] button (the right side of the [Control Pad]) to select/enter. Then use the [Control Pad] again to choose the APRS screen you desire and press [OK] to select/enter.
f. Press the [ESC] button twice to leave the APRS setup screen and return the D7A user screen.
g. You can now power down the radio and it will keep your settings.

2. AvMap Geosat 5 set-up

a. While programming the AvMap Geosat 5 and/or the Kenwood TH-D7, the communication cable should be disconnected. Strange and/or bad things can occur if you fail to head this warning!
b. Items in [ ] are buttons and/or knobs and { } are items you enter/see on the Geosat 5 screen.
c. Begin by pressing the [Page] button to turn the Geosat 5 on.
d. After the "Welcome on board" greeting, on the {WARNING} page, press [Accept] (the navigator automatically selects accept after 5 seconds).
e. On the {MAIN MENU} page press [SETTINGS].
f. On the {SETTINGS} press [User Preferences]
g. On the {USER PREFERENCES} page, press [Interface]
h. Press [è] to go to page 2/2
i. On the {INTERFACE} page, press the [APRS 9600] radial button. 9600 seems to work best for the Kenwood APRS radios
j. On the {INTERFACE} page, press [OK].
k. On the {USER PREFERENCES} page pres [OK].
l. On the {SETTINGS} page press {MAP}.

3. Making it all work!

a. Make sure both the Kenwood TH-D7 and AvMap Geosat 5 are turned OFF!
b. Connect the four pole 2.5mm communication cable end to the Geosat 5's TMC receptacle and the three pole 2.5mm end to the D7A's GPS receptacle. IMPORTANT! These are easily reversed and hooked up backwards; also when connecting to the Geosat 5 make sure you plug into the TMC receptacle, not the ANT receptacle which is right next to it and the same size!
c. NOW POWER UP BOTH UNITS!
d. Make sure the D7A is on the two meter band and the channel is set to 144.390.
e. OK here we go! Press the [TNC] button on the D7A. This will open the {TNC} of your D7A and communications between the Geosat 5 and D7A should now begin. NOTE: Make sure that the radio isn't in [TNC PACKET] mode.
f. DOES IT WORK?? Press the [POS] button. This will bring up the coordinates screen. IF the Geosat 5 is talking to the D7A you should see the (degrees, periods and commas) blinking…if they are not blinking you are NOT communicating. Press the [POS] button again to return to the normal user screen.

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